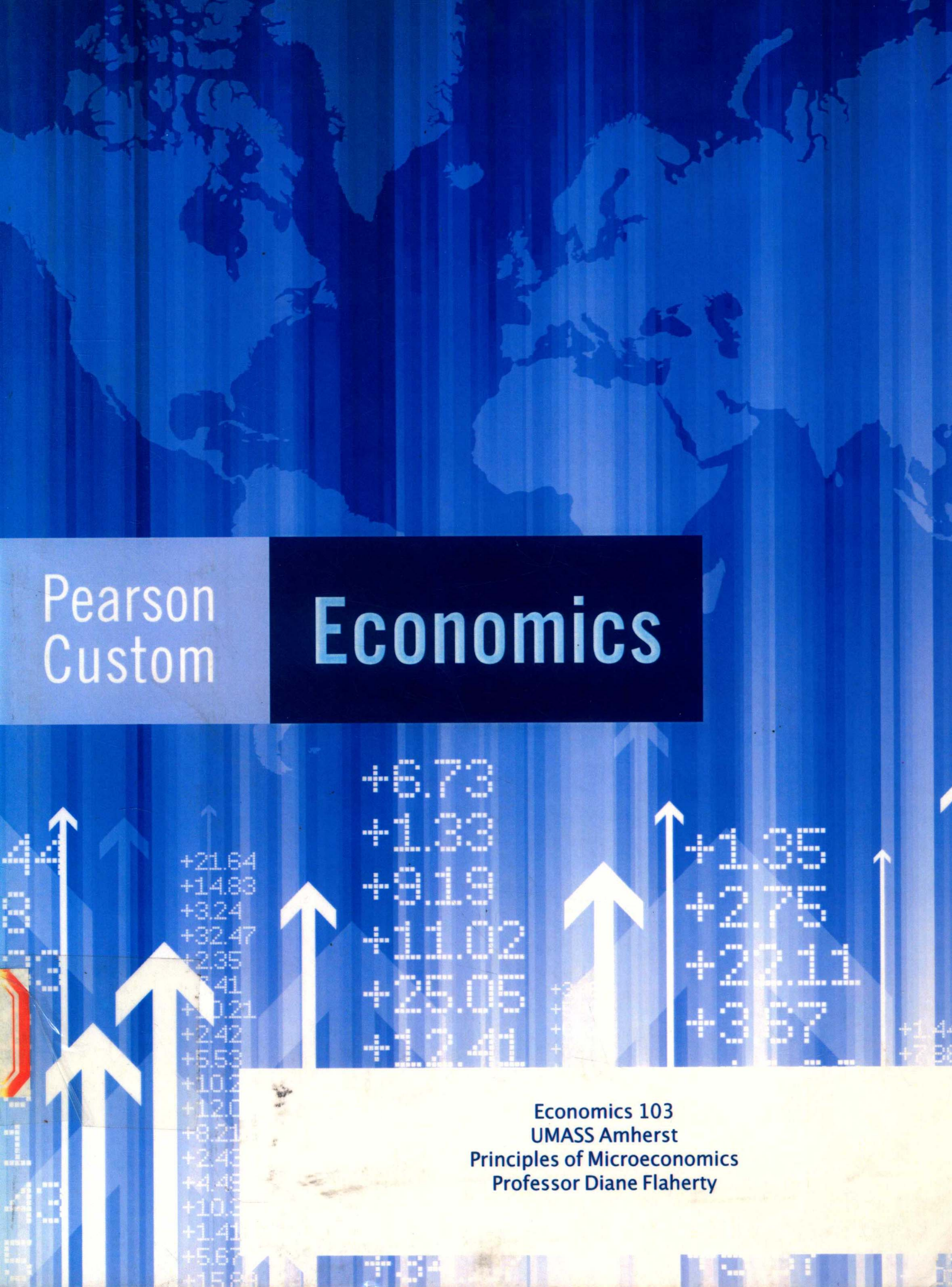
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Economics 103

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Principles of Microeconomics

Professor Diane Flaherty

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Pearson Learning Solutions, 501 Boylston Street, Suite 900, Boston, MA 02116
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www.pearsoned.com

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ISBN 10: 0-558-60897-3
ISBN 13: 978-0-558-60897-2

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Contents

Getting Started

CHAPTER CHECKLIST

When you have completed your study of this chapter, you will be able to

1 **Define economics and explain the kinds of questions that economists try to answer.**

2 **Explain the core ideas that define the economic way of thinking.**

You are studying economics at a time that will come to be known as the Information Age. Laptops with wireless Internet connections, iPods, cell phones, digital cameras, GPS navigators, DVD movies, video games, and a host of other gadgets have transformed the way we work and play.

As we step up the production of these high-tech goods, our incomes, and the incomes of people in China and India and much of the rest of the world, expand rapidly. Never before in human history have so many people become so much better off in so short a time span.

But not everyone is sharing in the world's growing incomes. Some regions of the world lag behind the leaders. And even in the United States, one of the richest nations, many people lose out as their jobs disappear in the rush to globalization.

And alongside the dazzling advances in technology and rising incomes, we see challenging trends in the opposite direction in personal and national security.

Your economics course will provide you with a toolkit that enables you to understand the powerful and sometimes conflicting forces that are shaping your world.

Let's get started by defining economics.

1 DEFINITION AND QUESTIONS

All economic questions and problems arise because human wants exceed the resources available to satisfy them. We want good health and long lives. We want spacious and comfortable homes. We want a huge range of sports and recreational equipment from running shoes to jet skis. We want the time to enjoy our favorite sports, video games, novels, music, and movies; to travel to exotic places; and just to hang out with friends.

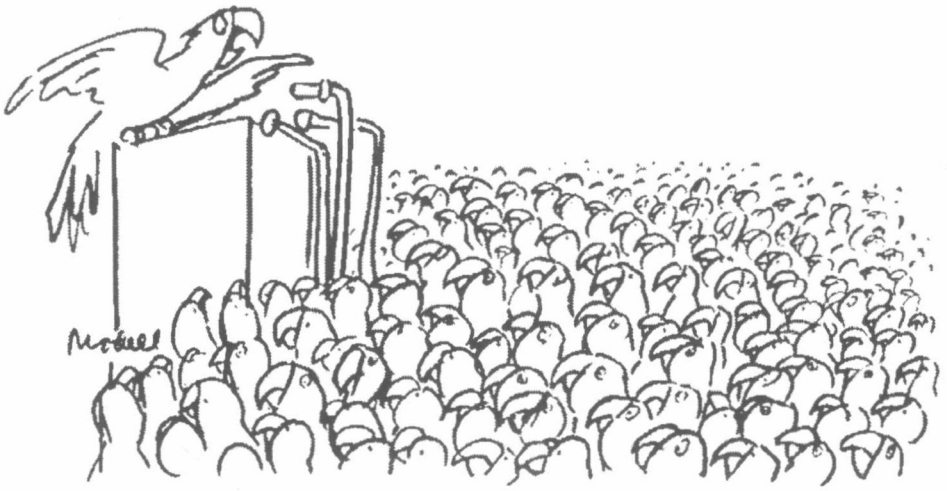
Scarcity

Scarcity
The condition that arises because wants exceed the ability of resources to satisfy them.

Our inability to satisfy all our wants is called **scarcity**. The ability of each of us to satisfy our wants is limited by the time we have, the incomes we earn, and the prices we pay for the things we buy. These limits mean that everyone has unsatisfied wants. The ability of all of us as a society to satisfy our wants is limited by the productive resources that exist. These resources include the gifts of nature, our labor and ingenuity, and the tools and equipment that we have made.

Everyone, poor and rich alike, faces scarcity. A student wants Shakira's latest CD and a paperback but has only $10.00 in his pocket. He faces scarcity. Brad Pitt wants to spend a week in New Orleans discussing plans for his new eco-friendly housing and he also wants to spend the week promoting his new movie. He faces scarcity. The U.S. government wants to increase defense spending and cut taxes. It faces scarcity. An entire society wants improved health care, an Internet connection in every classroom, an ambitious space exploration program, clean lakes and rivers, and so on. Society faces scarcity.

Faced with scarcity, we must make choices. We must choose among the available alternatives. The student must choose the CD or the paperback. Brad Pitt must choose New Orleans or promoting his new movie. The government must choose defense or tax cuts. And society must choose among health care, computers, space exploration, the environment, and so on. Even parrots face scarcity!



Not only do I want a cracker—we all want a cracker!

Economics Defined

Economics is the social science that studies the choices that individuals, businesses, governments, and entire societies make as they cope with *scarcity* and the *incentives* that influence and reconcile those choices.

Economics
The social science that studies the choices that individuals, businesses, governments, and entire societies make as they cope with *scarcity* and the *incentives* that influence and reconcile those choices.

The subject is extremely broad and touches all aspects of our lives. To get beyond this definition of economics, you need to understand the kinds of questions that economists try to answer and the way they think and go about seeking those answers.

We begin with some key economic questions. Although the scope of economics is broad and the range of questions that economists address is equally broad, two big questions provide a useful summary of the scope of economics:

- How do choices end up determining *what, how,* and *for whom* goods and services get produced?
- When do choices made in the pursuit of *self-interest* also promote the *social interest*?

What, How, and For Whom?

Goods and services are the objects and actions that people value and produce to satisfy human wants. Goods are objects that satisfy wants. Running shoes and ketchup are examples. Services are actions that satisfy wants. Haircuts and rock concerts are examples. We produce a dazzling array of goods and services that range from necessities such as food, houses, and health care to leisure items such as DVD players and roller coaster rides.

Goods and services
The objects (goods) and the actions (services) that people value and produce to satisfy human wants.

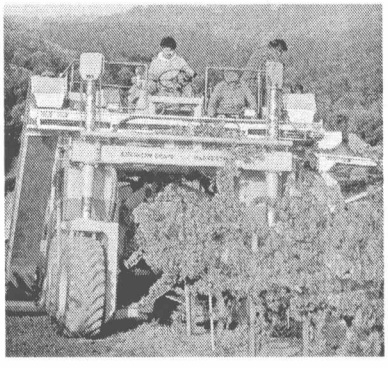
What?

What determines the quantities of corn we grow, homes we build, and health-care services we produce? Sixty years ago, 25 percent of Americans worked on a farm. That number has shrunk to less than 3 percent today. Over the same period, the number of people who produce goods—in mining, construction, and manufacturing—has also shrunk, from 30 percent to 20 percent. The decrease in farming and the production of goods is matched by an increase in the production of services. How will these quantities change in the future as ongoing changes in technology make an ever-wider array of goods and services available to us?

How?

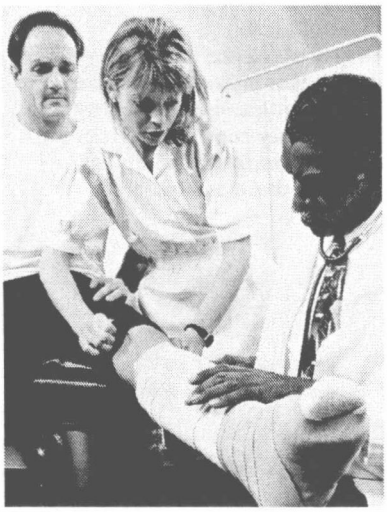
How are goods and services produced? In a vineyard in France, basket-carrying workers pick the annual grape crop by hand. In a vineyard in California, a huge machine and a few workers do the same job that a hundred grape pickers in France do. Look around you and you will see many examples of this phenomenon—the same job being done in different ways. In some supermarkets, checkout clerks key in prices. In others, they use a laser scanner. One farmer keeps track of his livestock feeding schedules and inventories by using paper-and-pencil records, while another uses a personal computer. GM hires workers to weld auto bodies in some of its plants and uses robots to do the job in others.

Why do we use machines in some cases and people in others? Do mechanization and technological change destroy more jobs than they create? Do they make us better off or worse off?



In a California vineyard a machine and a few workers do the same job as a hundred grape pickers in France.

For Whom?



A doctor gets more of the goods and services produced than a nurse or a medical assistant gets.

For whom are goods and services produced? The answer to this question depends on the incomes that people earn and the prices they pay for the goods and services they buy. At given prices, a person who has a high income is able to buy more goods and services than a person who has a low income. Doctors earn much higher incomes than do nurses and medical assistants, so doctors get more of the goods and services produced than nurses and medical assistants get.

You probably know about many other persistent differences in incomes. Men, on the average, earn more than women. Whites, on the average, earn more than minorities. College graduates, on the average, earn more than high school graduates. Americans, on the average, earn more than Europeans, who in turn earn more, on the average, than Asians and Africans. But there are some significant exceptions. The people of Japan and Hong Kong now earn an average income similar to that of Americans. And there is a lot of income inequality throughout the world.

What determines the incomes we earn? Why do doctors earn larger incomes than nurses? Why do white male college graduates earn more than minority female high school graduates? Why do Americans earn more, on the average, than Africans?

Economics explains how the choices that individuals, businesses, and governments make and the interactions of those choices end up determining *what, how,* and *for whom* goods and services get produced. In answering these questions, we have a deeper agenda in mind. We're not interested in just knowing how many DVD players get produced, how they get produced, and who gets to enjoy them. We ultimately want to know the answer to the second big economic question that we'll now explore.

When Is the Pursuit of Self-Interest in the Social Interest?

Every day, you and 296 million other Americans, along with 6.1 billion people in the rest of the world, make economic choices that result in *"what," "how,"* and *"for whom"* goods and services get produced.

Are the goods and services produced, and the quantities in which they are produced, the right ones? Do the scarce resources get used in the best possible way? Do the goods and services that we produce go to the people who benefit most from them?

Self-Interest and the Social Interest

Self-interest
The choices that are best for the individual who makes them.

Social interest
The choices that are best for society as a whole.

Choices that are the best for the individual who makes them are choices made in the pursuit of **self-interest**. Choices that are the best for society as a whole are said to be in the **social interest**. The social interest has two dimensions: *efficiency* and *equity*. For now, think of efficiency as being achieved by baking the biggest possible pie. And think of equity as being achieved by sharing the pie in the fairest possible way.

You know that your own choices are the best ones for you—or at least you *think* they're the best at the time that you make them. You use your time and other resources in the way that makes most sense to you. But you don't think much about how your choices affect other people. You order a home delivery pizza because you're hungry and want to eat. You don't order it thinking that the delivery person or the cook needs an income. You make choices that are in your self-interest—choices that you think are best for you.

When you act on your economic decisions, you come into contact with thousands of other people who produce and deliver the goods and services that you decide to buy or who buy the things that you sell. These people have made their own decisions—what to produce and how to produce it, whom to hire or whom to work for, and so on.

Like you, everyone else makes choices that they think are best for them. When the pizza delivery person shows up at your home, he's not doing you a favor. He's earning his income and hoping for a good tip.

Could it be possible that when each one of us makes choices that are in our own best interest—our self-interest—it turns out that these choices are also the best for society as a whole—in the social interest?

Much of the rest of this book helps you to learn what economists know about this question and its answer. To help you start thinking about the question, we're going to illustrate it with eight topics that generate heated discussion in today's world. You're already at least a little bit familiar with each one of them. They are

- Globalization and international outsourcing
- The new economy
- Disappearing tropical rainforests
- Water shortages
- Global warming
- Natural disasters
- Unemployment
- A Social Security time bomb

Globalization and International Outsourcing

Globalization and international outsourcing—the expansion of international trade and the production of components and services by firms in other countries—has been going on for centuries. But during the 1990s, its pace accelerated as advances in microchips, satellites, and fiber-optic cables lowered the cost of communication. A phone call, a video-conference, or a face-to-face meeting involving people who live 10,000 miles apart has become an everyday and easily affordable event.

Workers in Asia make our shoes.

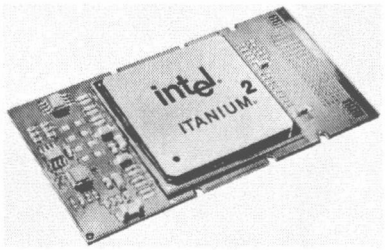
This explosion of communication has globalized production decisions. When Nike produces more sports shoes, people in China, Indonesia, or Malaysia get more work. When Steven Spielberg wants an animation sequence for a new movie, programmers in New Zealand write the code. And when China Airlines wants a new airplane, Americans who work for Boeing build it.

The number of jobs in manufacturing and routine services is shrinking in the United States and Europe and expanding in India, China, and other Asian economies. And production is growing more rapidly in Asia than in the United States and Europe. China is already the world's second largest economy, and if the current trends continue, it will become the largest economy during the 2020s.

But globalization is leaving some people behind. The nations of Africa and parts of South America are not sharing in the prosperity that globalization is bringing to other parts of the world.

Is globalization in the social interest, or does it benefit some at the expense of others? The owners of multinational firms clearly benefit from lower production costs. So do the consumers of low-cost imported goods and services. But don't displaced American workers lose? And doesn't even the worker in Malaysia, who sews your new running shoes for a few cents an hour, also lose?

The New Economy



The computer chip has transformed our lives.

The 1980s and 1990s were years of extraordinary economic change that have been called the *Information Revolution*. This name suggests a parallel with the *Industrial Revolution* of the years around 1800 and the *Agricultural Revolution* of 12,000 years ago.

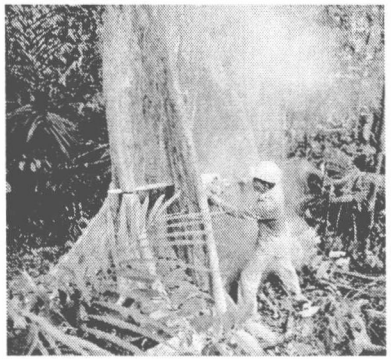
The changes that occurred during the last 25 years were based on one major technology: the microprocessor or computer chip. Gordon Moore of Intel predicted that the number of transistors that could be placed on one integrated chip would double every 18 months (Moore's law). This prediction turned out to be remarkably accurate.

The spin-offs from faster and cheaper computing have been widespread. Telecommunications became much faster and cheaper, music and movie recording became more realistic and cheaper, millions of routine tasks that previously required human decision and action were automated. You encounter these automated tasks every day when you check out at the supermarket, use an ATM, or call a government department or large business. All the new products and processes and the low-cost computing power that made them possible were produced by people who made choices in the pursuit of self-interest. They did not result from any grand design or government plan.

When Gordon Moore set up Intel and started making chips, he wasn't thinking how much easier it would be for you to turn in your essay on time if you had a faster PC. When Bill Gates quit Harvard to set up Microsoft, he wasn't trying to create the best operating system and improve people's computing experience. Moore and Gates and thousands of other entrepreneurs were in hot pursuit of the big payoffs that many of them achieved. Yet their actions did make many other people better off. They did advance the social interest.

But could more have been done? Were resources used in the best possible way during the information revolution? Did Intel make the best possible chips and sell them in the right quantities for the right prices? Or was the quality of the chips too low and the price too high? And what about Microsoft? Did Bill Gates have to be paid almost $50 billion to produce the successive generations of Windows and Word? Were these programs developed in the social interest?

Disappearing Tropical Rainforests



Logging is destroying the world's rainforests.

Tropical rainforests in South America, Africa, and Asia support the lives of 30 million species of plants, animals, and insects—approaching 50 percent of all species on the planet. The Amazon rainforest alone converts about 1 trillion pounds of carbon dioxide into oxygen each year. These rainforests also provide us with the ingredients for many goods including soaps, mouthwashes, shampoos, food preservatives, rubber, nuts, and fruits.

Yet tropical rainforests cover less than two percent of the earth's surface and are heading for extinction. Logging, cattle ranching, mining, oil extraction, hydroelectric dams, and subsistence farming are destroying the equivalent to two football fields every second, or an area larger than New York City every day. At the current rate of destruction, almost all the tropical rainforest ecosystems will be gone by 2030.

Each one of us makes economic choices that are in our self-interest to consume products, some of which are destroying our rainforests. Are our choices damaging the social interest? And if they are, what can be done to change the incentives we face and change our behavior?

Water Shortages

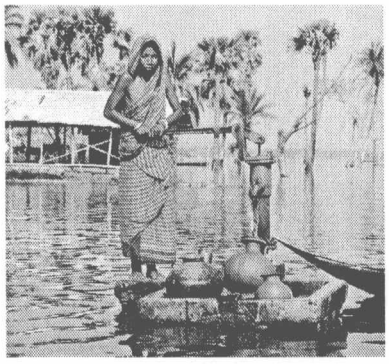
The world is awash with water—it is our most abundant resource. But 97 percent of it is seawater. Another 2 percent is frozen in glaciers and ice. The 1 percent of the earth's water that is available for human consumption would be sufficient if only it were in the right places. Finland, Canada, and a few other places have more water than they can use, but Australia, Africa, and California (and many other places) could use much more water than they can get.

Some people pay less for water than others. California farmers, for example, pay less than California households. Some of the highest prices for water are faced by people in the poorest countries who must either buy from a water dealer's truck or carry water in buckets over many miles.

In the United States, water is provided by public enterprises. In the United Kingdom, private companies deliver the water.

In India and Bangladesh, plenty of rain falls, but it falls during a short wet season and the rest of the year is dry. Dams could help to reduce the shortage in the dry season but too few have been built in those countries.

Are we managing our water resources properly? Are the decisions that each of us makes in our self-interest to use, conserve, and transport water also in the social interest?



Water is abundant but clean water is scarce.

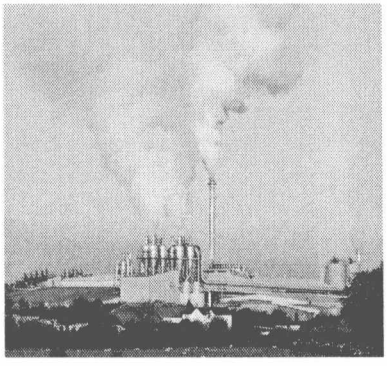
Global Warming

The earth is getting hotter. Since the late nineteenth century, its surface temperature has increased about 1 degree Fahrenheit, and close to a half of that increase occurred over the past 25 years. While these changes are small, particularly when viewed against the temperature fluctuations associated with Ice Ages, they are large enough to have a lot of people worried.

Most climate scientists believe that the current warming has come at least in part from human economic activity—from self-interested choices—and that, if left unchecked, the warming will bring large future economic costs.

As part of an attempt to slow global warming, an international meeting in Japan in 1997 led to the Kyoto Protocol, an agreement that seeks legally binding emissions cuts for the industrialized nations. But the Protocol does not impose limits on the poorer developing nations. Almost the entire world signed onto Kyoto. But the United States and Australia refused to do so. They argue that the agreement does too little to address the global warming problem and that their own independent efforts will make a more effective contribution.

Are the choices that each of us makes to use energy damaging the social interest? What needs to be done to make our choices serve the social interest? Would the United States signing onto the Kyoto Protocol serve the social interest? What other measures must be introduced?



Human activity is raising the earth's temperature.

Natural Disasters

When Hurricane Katrina hit New Orleans on August 29, 2005, a thousand people died, tens of thousands lost everything they owned, and hundreds of thousands were forced from their homes. Much of the city was flooded and polluted, and posed a health risk for those who remained. Looting erupted as desperate people sought food and medicine and as others seized an opportunity to profit from tragedy and the temporary absence of law and order. Beyond the human tragedies, crude oil production and gasoline refining took a hit and one of the nation's busiest ports was silenced.

Katrina highlighted the tension between self-interest and the social interest.

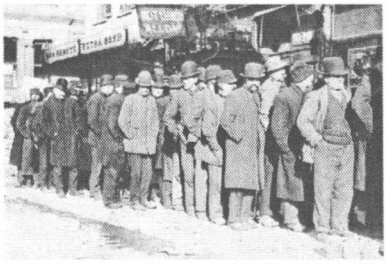
But Katrina didn't only unleash devastation and disaster for the people of New Orleans. It also unleashed an economic response. The prices of oil and gasoline increased, which encouraged more careful use of these now less plentiful resources. The price of plywood needed to repair damaged homes jumped, which brought forth a greater quantity of this now more valued item.

Millions of individual Americans contributed money and thousands who work for organizations such as the Red Cross and the Salvation Army contributed time, energy, and effort to bring shelter, food, and comfort to the displaced. Governments also acted, but more slowly. Gradually levees were restored, streets were pumped dry, and the city slowly started to return to life.

The events that played out following Katrina provide a powerful illustration of the tension between self-interest and the social interest and raise questions about the ability of markets and governments to cope with major disasters.

Without government enforced laws, self-interest can be carried too far and damage the social interest. But can government do more? What is the best balance between government and private provision of services and aid to people struck down by natural disaster? And do price hikes that clearly serve the self-interest of producers and hurt the self-interest of consumers further the social interest?

Unemployment



During the 1930s, the longest lines were for jobs.

During the 1930s, in a period called the *Great Depression*, more than 20 percent of the labor force was unemployed. One of the triumphs of economics is that we have developed policies that can stabilize the economy and avoid depressions. Yet even today, when only 5 percent of Americans are unemployed, more than 40 percent of African-American teenagers are unemployed. Why can't everyone who wants a job find one? If economic choices arise from scarcity, why are resources left unused?

People get jobs because other people think they can earn a profit by hiring them. And people accept jobs when they think the pay and other conditions are good enough. So the number of people with jobs is determined by the self-interest of employers and workers. But is the number of jobs also in the social interest?

A Social Security Time Bomb

A Social Security time bomb is ticking as benefits grow faster than contributions.

Every single day since September 30, 2004, the U.S. government has run a budget deficit of $1.5 billion, which means that the government's debt has increased each day by that amount. At the end of September 2007, the government's outstanding debt reached $9 trillion, of which your personal share is $30,000.

Also, during 2007, Americans bought goods and services from the rest of the world in excess of what foreigners bought from the United States to the tune of $800 billion. To pay for these goods and services, Americans borrowed from the rest of the world.

These large deficits are just the beginning of an even bigger problem. From about 2019 onwards, the retirement and health-care benefits to which older Americans are entitled are going to cost increasingly more than the current Social Security taxes can pay for. With no changes in taxes or benefit rates, the deficit and debt will swell ever higher.

Deficits and the debts they create cannot persist indefinitely, and debts must somehow be repaid. They will most likely be repaid by you, not by your parents. When we make our voter choices and our choices to buy from or sell to the rest of the world, we pursue our self-interest. Do our choices damage the social interest?

CHECKPOINT 1

1 Define economics and explain the kinds of questions that economists try to answer.

Practice Problems

myeconlab Study Plan

1. Economics studies choices that arise from one fact. What is that fact?
2. Provide three examples of wants in the United States today that are especially pressing but not satisfied.
3. Here are three news headlines. Find in these headlines examples of the *what*, *how*, and *for whom* questions: "With more research, we will cure cancer"; "A good education is the right of every child"; "The government must cut its budget deficit by raising taxes"
4. How does a new Starbucks coffee shop in Beijing, China, influence self-interest and the social interest?
5. How does Facebook influence self-interest and the social interest?

Exercises

myeconlab Sample Test A

1. Every day, we make many choices. Why can't we avoid having to make choices?
2. Find an example in today's news of a want that is not satisfied.
3. Check the local media for headlines that ask two of the *what*, *how*, and *for whom* questions.
4. Which of the following headlines deals with *what*, *how*, and *for whom* questions?
   "Major league baseball's turf keepers earn about $85,000, umpires earn about $350,000, and players make millions a year"
   "Many full-service gas stations are switching to self-serve"
   "Retail trends analysts make as much as $300,000 a year, while retail salespeople make less than $10 an hour"
5. Explain how the following headlines concern self-interest and social interest:
   "President George W. Bush powers his Texas ranch with solar electricity"
   "Today's upper-class traveler goes on safari in southern Africa or stays at eco-resorts that cost $1,000 a night but do not have electricity"

Solutions to Practice Problems

1. The fact is scarcity—human wants exceed the resources available.
2. Security from international terrorism, cleaner air in our cities, better public schools. (You can perhaps think of some more.)
3. More research is a *how* question, and a cure for cancer is a *what* question. Good education is a *what* question, and every child is a *for whom* question. The government's raising taxes is a *for whom* question.
4. Decisions made by Starbucks are in Starbucks' self-interest but they serve the self-interest of its customers and so contribute to the social interest.
5. Facebook serves the self-interest of its investors, users, and advertisers. It also serves the social interest by enabling people to share information.

2 THE ECONOMIC WAY OF THINKING

The definition of economics and the kinds of questions that economists try to answer give you a flavor of the scope of economics. But they don't tell you how economists *think* about these questions and go about seeking answers to them. You're now going to see how economists approach their work.

We'll break this task into three parts. First, we'll explain the core ideas that economists constantly and repeatedly use to frame their view of the world. These ideas will soon have you thinking like an economist. Second, we'll explain the distinction between the micro and macro views of the economic world. Finally, we'll look at economics both as a social science and as a policy tool that governments, businesses, and *you* can use.

Core Economic Ideas

Five core ideas summarize the economic approach or economic way of thinking about the choices that must be made to cope with scarcity:

- People make *rational choices* by comparing costs and benefits.
- *Cost* is what you *must* give up to get something.
- *Benefit* is what you gain when you get something and is measured by what you *are willing to* give up to get it.
- A rational choice is made on the *margin.*
- Choices respond to *incentives.*

Rational Choice

Rational choice
A choice that uses the available resources to best achieve the objective of the person making the choice.

The most basic idea of economics is that in making choices, people act rationally. A **rational choice** is one that uses the available resources to best achieve the objective of the person making the choice.

Only the wants and preferences of the person making a choice are relevant to determine its rationality. For example, you might like chocolate ice cream more than vanilla ice cream, but your friend prefers vanilla. So it is rational for you to choose chocolate and for your friend to choose vanilla.

A rational choice might turn out not to have been the best choice after the event. A farmer might decide to plant wheat rather than soybeans. Then, when the crop comes to market, the price of soybeans might be much higher than the price of wheat. The farmer's choice was rational when it was made, but subsequent events made it less profitable than the alternative choice.

The idea of rational choice provides an answer to the first question: What goods and services will get produced and in what quantities? The answer is: Those that people rationally choose to buy!

But how do people choose rationally? Why have most people chosen to buy Microsoft's Windows operating system rather than another? Why do more people today choose to drink bottled water and sports energy drinks than did in the past? Why has the U.S. government chosen to fund the building of an interstate highway system and not an interstate high-speed railroad system?

We make rational choices by comparing *costs* and *benefits.* But economists think about costs and benefits in a special and revealing way. Let's look at the economic concepts of cost and benefit.

Cost: What You *Must* Give Up

Whatever you choose to do, you could have done something else instead. You could have done lots of things other than what you actually did. But one of these other things is the *best* alternative given up. The best thing that you must give up to get something is the **opportunity cost** of the thing that you get. The best thing that you could have chosen—the highest-valued alternative forgone—is the opportunity cost of the thing that you did choose.

Opportunity cost
The opportunity cost of something is the best thing you *must* give up to get it.

We use the term *opportunity cost* to emphasize that when we make a choice in the face of scarcity, we give up an opportunity to do something else. You can quit school right now, or you can remain in school. Suppose that if you quit school, the best job you can get is at Kinko's, where you can earn $10,000 during the year. The opportunity cost of remaining in school includes the things that you could have bought with this $10,000. The opportunity cost also includes the value of the leisure time that you must forgo to study.

Opportunity cost of the thing you get is *only* the best alternative forgone. It does not include all the expenditures that you make. For example, your expenditure on tuition is part of the opportunity cost of being in school. But your meal plan and rent are not. Whether you're in school or working, you must eat and have somewhere to live. So the cost of your school meal plan and your rent are *not* part of the opportunity cost of being in school.

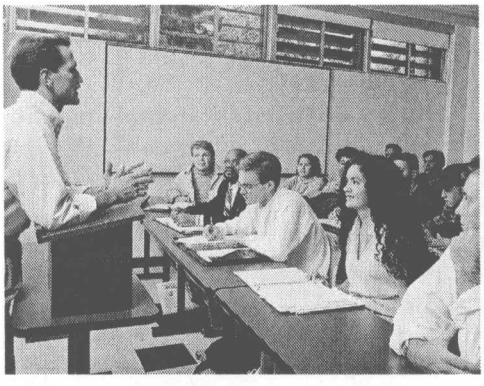
Also, past expenditures that cannot be reversed are not part of opportunity cost. Suppose you've paid your term's tuition and it is nonrefundable. If you now contemplate quitting school, the paid tuition is irrelevant. It is called a sunk cost. A **sunk cost** is a previously incurred and irreversible cost. Whether you remain in school or quit school, the tuition that you've paid is not part of the opportunity cost of remaining in school.

Sunk cost
A previously incurred and irreversible cost.

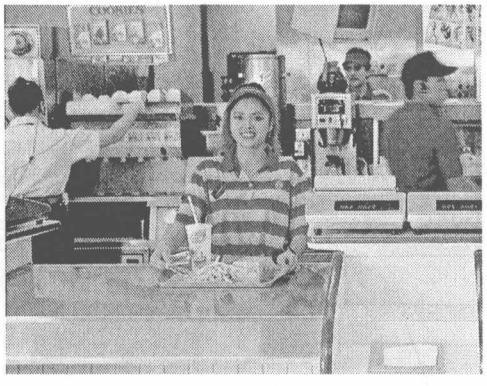
Benefit: Gain Measured by What You *Are Willing to* Give Up

The **benefit** of something is the gain or pleasure that it brings. Benefit is how a person *feels* about something. For example, you might be anxious to get *Pokemon Diamond*, a popular video game. It will bring you a large benefit. And you might have almost no interest in a Yo Yo Ma CD of Vivaldi's cello concertos. It will bring you a small benefit.

Benefit
The benefit of something is the gain or pleasure that it brings.



For these students, the opportunity cost of being in school is worth bearing.



For the full-time fast-food worker, the opportunity cost of remaining in school is too high.